STATE FOREST LAND
ENVIRONMENTAL CHECKLIST

Purpose of Checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decided whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can. *Questions in italics are supplemental to Ecology's standard environmental checklist. They have been added by the DNR to assist in the review of state forest land proposals. Adjacency and landscape/ watershed-administrative-unit (WAU) maps for this proposal are available on the DNR internet website at http://www.dnr.wa.gov under "SEPA Center." These maps may also be reviewed at the DNR regional office responsible for the proposal. This checklist is to be used for SEPA evaluation of state forest land activities.*

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later. *All of the questions are intended to address the complete proposal as described by your response to question A-11. The proposal acres in question A-11 may cover a larger area than the forest practice application acres, or the actual timber sale acres.*

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered " does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NON PROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer" and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

   Timber Sale Name: **Aria PC** *Agreement #:* **30-76491**

2. Name of applicant: **Department of Natural Resources**

3. Address and phone number of applicant and contact person: **DNR Northwest Region**
   919 North Township Street
   Sedro Woolley, WA 98284
   Contact Person: Candace Johnson (360) 856-3500

4. Date checklist prepared: **6/25/04**

5. Agency requesting checklist: **Department of Natural Resources**

6. Proposed timing or schedule (including phasing, if applicable):

a.	*Auction Date:*	**12/13/04**
b.	*Planned contract end date (but may be extended):*	**9/30/06**
c.	*Phasing:*	**N/A**

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

   Timber Sale

a.	*Site preparation:*	**Treatment of openings greater than 1/10 acre will be assessed after operations.**
b.	*Regeneration Method:*	**Hand plant openings with conifer seedlings, and natural regeneration of western hemlock and red alder.**
c.	*Vegetation Management:*	**Treatment will be assessed in 3-5 years.**
d.	*Thinning:*	**Treatment will be assessed in 10-15 years.**

   Roads: **The HM-ML road will continue to be used for future timber sales, forest management activities and to access a Forest Service trailhead.**

   Rock Pits and/or Sale: **The following proposed rock pit would be used for this proposal and also Higgins Hardwood. If there is rock left in the pit after these two proposals, it will be used in the future for timber sales, road maintenance, and other forest management activities:**

   HM-21 Rock Pit
   Section 36, Township 33 North, Range 07 East, W.M.
   HM-2002 Rock Pit
   Section 36, Township 33 North, Range 07 East, W.M.

Other:

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

☒*303 (d) – listed water body in WAU:* ☒*temp* ☐*sediment* ☒*completed TMDL (total maximum daily load):* **The department GIS map shows 303d listed water. Contact the DNR Northwest Region office or visit http://www.ecy.wa.gov/programs/wq/303d for more information. One stream is located west of the proposal and does not impact the proposal area.**
☐*Landscape plan:*
☒*Watershed analysis:* **Hazel Watershed Analysis (1997)**
☐*Interdisciplinary team (ID Team) report:*
☒*Road design plan:* **Northwest Region Office**
☒*Wildlife report:* **Biologist Comments, Northwest Region Office**
☐*Geotechnical report:*
☐*Other specialist report(s):*
☐*Memorandum of understanding (sportsmen's groups, neighborhood associations, tribes, etc.):*
☒*Rock pit plan:* **Northwest Region Office**
☒*Other:* **Forest Resources Plan Environmental Impact Statement (1992), Final Habitat Conservation Plan (1997), State Soil Survey (1992).**

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.
None known.

10. List any government approvals or permits that will be needed for your proposal, if known.

☐*HPA* ☐*Burning permit* ☐*Shoreline permit* ☐*Incidental take permit* ☒*FPA #* _____ ☐*Other:*
HPA not necessary.

11. Give brief, complete description of our proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include specific information on project description.)

a. Complete proposal description:

Proposal area: Aria PC Timber Sale is comprised of six thinning prescription compartments (designated as timber sale units). Approximately 320 acres were evaluated for this proposal. There are about 32.5 acres reserved in riparian buffers associated with the sale. The proposal area has private ownership to the south, Forest Service to the east, and DNR ownership to the north and west. Timber associated with this proposal will be harvested using ground based and cable yarding methods.

The proposal is located within the Hazel WAU, for which a Watershed Analysis was completed in December of 1997 (see question A.13).
The proposal is also within a designated northern spotted owl Nesting, Roosting, and Foraging (NRF) management area, and thus it must comply with DNR's Habitat Conservation Plan (HCP) prescriptions for maintaining and improving habitat for the northern spotted owl. The timber sale area does not currently meet minimum spotted owl NRF habitat conditions. In accordance with HCP prescriptions (section IV) for WAUs that contain less than 50 percent NRF habitat, this proposal will remove red alder, and understory conifer. Bigleaf maple and black cottonwood will be left for additional stand structure and the tree species association with wildlife attributes. The goal of this silviculture treatment is to move toward sub-mature habitat conditions more quickly than if the site were left untreated.

Gross Acreage: The gross acreage (includes existing road, buffers, rock pit, and the proposed right of way [R/W] in each unit) totals 287.1 acres (Unit 1 =47 ac; Unit 2= 100.3 ac; Unit 3 = 70 ac; Unit 4= 38 ac; Unit 5=20 ac; and Unit 6=11.8 ac).

Timber Sale Area: The timber sale net area (gross acreage minus existing roads, buffers, and rock pit; and proposed right of way acreage listed out separately from the units) totals 272.4 acres (Unit 1 =45 ac; Unit 2= 90.1 ac; Unit 3 = 64.4 ac; Unit 4= 36.8 ac; Unit 5=20 ac; Unit 6=11.6 ac; R/W=4.5 ac).

Sale of timber:

Estimated Volume:	**2,419 MBF**
Total # of Units:	**6**
Area in Acres:	**287 gross acres, 272 net acres**
Type of Harvest:	**Variable Density Thinning**
Logging System:	**Cable & Ground based yarding.**
Landings:	**15 (roads are also available for landings)**

b. Timber stand description pre-harvest (include major timber species and origin date), type of harvest, overall unit objectives.

Pre-Harvest Stand Description: The proposal area contains stands 50-60 years of age. The forest type is mixed hardwood and conifer. Snags and down woody material are present in these stands.

Average basal area for these stands is 240-268 ft^2/acre based on trees greater than four inches diameter at breast height (DBH); 64% of which is western hemlock (average DBH of 7-12"), 14% Douglas fir (average DBH of 13-21"), 10% western redcedar (average DBH of 7-13"), and 10% is red alder. Average tree densities range from 199 to 567 trees per acre, and relative densities (RD) range from 50 to 81. Canopy heights in these stands are roughly 120 feet. Understory vegetation includes salal, Oregon grape, sword fern, huckleberry, and salmonberry.

The proposed sale is not within any reclassified or reclassified plus marbled murrelet polygons.

Overall Unit Objectives: Objectives for this proposal include enhancing Nesting, Roosting, Foraging habitat as defined in the HCP through a variable density thinning; generating revenue for State Forest Board – Transfer (trust 01) and University Original (trust 11); protecting water quality, and maintaining site productivity. This proposal meets or exceeds all of the guidelines and prescriptions set forth in the DNR Habitat Conservation Plan, Forest Resource Plan, Hazel Watershed Analysis, and Forest Practices Rules and Regulations.

c. *Road activity summary. See also forest practice application (FPA) for maps and more details.*

Type of Activity	How Many	Length (feet) (Estimated)	Acres (Estimated)	Fish Barrier Removals (#)
Construction		4,000	1.38	
Reconstruction		1,250		
Abandonment		5,150	1.77	
Bridge Install/Replace				
Culvert Install/Replace (fish)				
Culvert Install/Replace (no fish)	17			

12. Location of proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. *(See timber sale map. See also color landscape/WAU map on the DNR website http://www.dnr.wa.gov under "SEPA Center.")*

a. Legal description: **Sections 25 and 36, Township 33 North, Range 7 East, W.M.**

b. *Distance and direction from nearest town (include road names):*
This proposal is located approximately 16.5 miles east of Arlington, WA, off State Route 530. The units and rock pits are accessed by traveling north (left) on the HM-ML road (marked with a "C-POST" street sign along SR-530) for 0.5 mile to a fork in the road. Turn left at the fork and travel about 1.3 miles to the beginning of the sale area.

c. *Identify the watershed administrative unit (WAU), the WAU Sub-basin(s), and acres. (See also landscape/WAU map on DNR website http://www.dnr.wa.gov under " SEPA Center.")*

WAU/Sub-basin Name	WAU/Sub-basin Acres	Proposal Acres
HAZEL WAU	**24,213**	**287 gross acres**
Sub-basin Dicks Creek	**2,186**	**85 gross acres**
Sub-basin Rollins	**5,096**	**202 gross acres**

13. *Discuss any known future activities not associated with this proposal that may result in a cumulative change in the environment when combined with the past and current proposal(s). (See digital ortho-photos for WAU and adjacency maps on DNR website http://www.dnr.wa.gov under "SEPA Center" for a broader landscape perspective.)*

Hazel WAU:
According to the Hazel Watershed Analysis, "Landownership includes the U.S. Forest Service (39%), the Department of Natural Resources (35%), Grandy Lakes Forest Associates (6%), and small, non-industrial private landowners (20%)."

Name	Acres	DNR managed acres	% DNR managed land	Proposal Acres	Non-DNR land	% Non-DNR land
Hazel WAU	**24,213**	**8,625**	**36**	**287**	**15,588**	**64**
Sub-basin Dicks Creek	**2,186**	**201**	**9**	**85**	**1,985**	**91**
Sub-basin Rollins Creek	**5,096**	**2,901**	**57**	**202**	**2,195**	**43**

The following table reports timber harvest activity in the Hazel WAU within the past seven years on both DNR managed lands and non-DNR lands. The data was compiled from the Department's Forest Practices' GIS database. This information is based on the best available information as of May 27, 2004.

WAU	DNR harvest acres: Even-aged	DNR harvest acres: Uneven-aged	Non-DNR harvest acres: Even-aged	Non-DNR harvest acres: Uneven-aged
Hazel	**495**	**2**	**194**	**29**

Future forest management activities in the WAU include road building, rock pit expansion, silvicultural work and timber harvesting. Activities occurring on DNR managed land will follow Forest Practices Rules, Habitat Conservation Plan (HCP) guidelines, and the Forest Resource Plan – policies designed to minimize environmental impacts. Future forest management activities on privately managed, non-DNR lands will be subject to the Forest Practice Rules.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (check one):

☐Flat, ☐Rolling, ☐Hilly, ☐Steep Slopes, ☐Mountainous, ☒Other: rolling to steep

1) *General description of the WAU or sub-basin(s) (landforms, climate, elevations, and forest vegetation zone).*

"Elevations in the Hazel WAU range from 200 feet along the Stillaguamish floodplain to 5,200 feet at the summit of Mt. Higgins with an average elevation of 1,835 feet. The upper elevations are comprised of bedded sandstones with smaller exposures of rocks associated with the Helena-Haystack mélange. Glacial deposits, including lacustrine clays, recessional outwash, and till, extend mainly from the Stillaguamish floodplain to 750 feet in elevation, but are also found in the headwaters of the Dicks Creek subwatershed. In general, soils on the steeper slopes are predominantly sandy or sandy loams underlain by sandstone, and are considered well-drained. Floodplain soils and soils formed on glacial terraces vary from poorly drained to moderately well drained silt loams and gravelly loams."(Hazel Watershed Analysis, p.1)

"The WAU has a predominantly maritime-type climate, with cool, dry summers, and mild, wet winters influenced by air currents from the Pacific Ocean. Annual precipitation varies from 80 inches along the Stillaguamish floodplain to over 110 inches near the summit of Mt. Higgins. Average annual precipitation for the WAU is estimated at 100 inches. Most of the precipitation occurs as rain during the months of October through March. Snow persists throughout the winter months above 3,000 feet in elevation. The majority of the WAU is located within the western hemlock zone as defined by Franklin and Dyrness (1988). This zone is dominated by sub-climax Douglas fir (*Pseudotsuga menziesii)* and climax western hemlock (*Tsuga heterophylla)* and western redcedar (*Thuja plicata*). Elevations above 3,000 feet are typically dominated by Pacific silver fir (*Abies amabilis*) and mountain hemlock (*Tsuga mertensiana*)."(Hazel Watershed Analysis, pp.1-3)

2) Identify any difference between the proposal location and the general description of the WAU or sub-basin(s).

The timber harvest proposal is located in the central-western portion of the Hazel WAU. The harvest area contains an elevation range from 800 feet to 2,400 feet. Landforms and timber types are typical for mid elevations of the Hazel WAU.

b. What is the steepest slope on the site (approximate percent slope)?
The steepest slope is roughly 80%.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland. *Note: The following table is created from state soil survey data. It is a roll-up of general soils information for the soils found in the entire sale area. It is only one of several site assessment tools used in conjunction with actual site inspections for slope stability concerns or erosion potential. It can help indicate potential for shallow, rapid soil movement, but often does not represent deeper soil sub-strata. The actual soils conditions in the sale area may vary considerably based on land-form shapes, presence of erosive situations, and other factors. The state soil survey is a compilation of various surveys with different standards.*

State Soil Survey #	Soil Texture	% Slope	Acres	Mass Wasting Potential	Erosion Potential
7409	Gravelly loam	0-30%	100	Insignificant	Low
0143	Gravelly loam	60-90%	158	High	High
0423	v. gravelly sandy loam	30-60%	4	Medium	Medium
7411	v. gravelly loam	30-65%	10	Medium	Medium

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.
Yes.

1) Surface indications:
Within the proposed sale area debris flows have occurred within inner gorge/incised channels in the upper elevation portions of the sale. Failures that triggered the post harvest debris flows appear to have originated upslope of the sale. No mapped failures were in the watershed analysis report as having originated in the proposed sale area.

2) Is there evidence of natural slope failures in the sub-basin(s)?
☐*No* ☒*Yes, type of failures (shallow vs. deep-seated) and failure site characteristics:*

The Watershed Analysis report identified both deep-seated and shallow rapid failures in both sub basins. There is evidence of landslides and avalanches on the steep slopes near the summit of Mount Higgins.

3) Are there slope failures in the sub-basin(s) associated with timber harvest activities or roads?
☐*No* ☒*Yes, type of failures (shallow vs. deep-seated) and failure site characteristics:*
Associated management activity:
The Watershed Analysis report identifies road related shallow rapid failures upslope of the proposal and on the mid slopes of Mount Higgins. Deep-seated landslides are also identified on glacial terrace slopes along Rollins Creek and Dicks Creek as well as along the North Fork Stillaguamish River.

4) Is the proposed site similar to sites where slope failures have occurred previously in the sub-basin(s)?
☐*No* ☒*Yes, describe similarities between the conditions and activities on these sites:*

Part of the proposal site is adjacent to and west of a shallow rapid failure in a steep type 5 creek channel. This failure was due to road construction (in the late 1960's or 1970's) upslope of the proposal. This road has since been abandoned to Forest Practices standards with no subsequent failures.
The proposal will use an old truck grade, which was constructed in the 1950's, as a skid trail. The prism of this old road has remained stable but erosion has occurred at stream crossings.

5) Describe any slope stability protection measures (including sale boundary location, road, and harvest system decisions) incorporated into this proposal.

Areas similar to the previous failure site (a shallow rapid failure in a type 5 creek channel) are bounded out of the sale with timber sale boundary tags that extend to the break of the creek side slopes. This boundary stays 50-80 feet away from each side of the channels. These channels are protected in accordance with Hazel Watershed Analysis prescriptions for "Mass Wasting Unit # 3: inner gorges with steep (>50%) uninterrupted side slopes; vertical distances from the channel bottom to the slope break greater than 25 feet; associated with colluvial soils over bedrock and till" (p. P-5).

The old truck grade between Unit #1 and Unit #2, which will be used as a skid trail, will have culverts placed in the drainages during operations. Operations will be limited to dry weather conditions only. At the conclusion of operations culverts will be pulled and channels restored to their natural gradients. Roads were located to minimize ground based yarding distances to an average of 400 feet or less and to access cable landing locations for areas requiring cable yarding.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Approx. acreage new roads: *1.38 acres*
Approx. acreage new landings: *2 acres*
Fill source: *Native Material*

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
R**oad and skid trail abandonment specifications reduce the long-term erosion potential.**

Seasonal hauling restrictions and grass seeding/mulching of exposed soils will minimize short-term erosion potential.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? *Approximate percent of proposal in permanent road running surface (includes gravel roads):*

0%. The HM-ML will remain open after harvest activities are completed. All new and reconstructed roads and/or skid trails within the proposal area will be abandoned after harvest activities are complete.

h. Propose measures to reduce or control erosion, or other impacts to the earth, if any:
(Include protection measures for minimizing compaction or rutting.)
To control road related erosion, road pioneering will not extend more than 500 feet beyond completed construction, culverts will be installed concurrently with the construction of the road sub grade, and cross-drain culverts will direct water back to the forest floor.
Exposed soils resulting from road construction and abandonment will be re-vegetated. In addition, a protective cover over the revegetated area will be applied if revegetation occurs between July 1 and March 31 in the year the work is conducted.
Hauling and yarding restrictions will be applied during periods of extended rainfall.
A 30-foot equipment limitation zone will be applied on type-5 streams.
Ground base harvesting, will be restricted to the dry season and limited to slopes less than 25%.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust *from truck traffic, rock mining, crushing or hauling*, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.
No emissions are anticipated other than minor amounts of equipment exhaust and road dust created by log hauling activities. Landings may be burned.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.
Not applicable.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:
If slash burning occurs, it will adhere to the State's Smoke Management Act.

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. *(See timber sale map and forest practice base maps.)*

- **Type 5 streams: (7) interior to all the sale unit boundaries; (2) exterior.**
- **Type 4 streams: (2) one borders the west portion of Unit #5; the other borders west of Unit #6.**
- **All flow southwest into Rollins Creek, eventually merging with the North Fork Stillaguamish River.**
- **Type 3 stream: (1) Dicks Creek borders the east side of Unit #2 and Unit #3, eventually merging into the North Fork Stillaguamish River.**
- **Wetland: (1) is the source for the type 4 stream west of Unit #6.**

a) Downstream water bodies:
Rollins Creek, Dicks Creek and North Fork Stillaguamish River.

b) Complete the following riparian & wetland management zone table:

Wetland, Stream, Lake, Pond, or Saltwater Name (if any)	Water Type	Number (how many?)	Avg RMZ/WMZ Width in Feet (per side for streams)
Wetland	B	1	150 feet
Un-named stream	5	9	50-80 feet average on portions of 7 type 5's
Un-named stream	4	2	100 feet
Dicks Creek	3	1	150 feet

c) List RMZ/WMZ protection measures including silvicultural prescriptions, road-related RMZ/WMZ protection measures, and wind buffers.

Site class III came from the Forest Practices Web site.

The wetland has a 150-foot site index no harvest buffer.

The one type-3 stream (Dicks Creek) will be given a site index no harvest buffer of 150 feet on the west side of its channel. The buffer was located where slopes broke into Dicks Creek. Distances from the creek were a minimum of 150 feet or where slope break dictated, which ever came first.

Type 4 streams will receive 100-foot no harvest buffers on the east side of each stream channel.

Portions of type 5 channels with steepened side slopes >50% were protected with average buffer widths of 50-80 feet.

The type 5 stream separating Unit #4 and Unit #6 has 42 selected trees painted blue, which are being left for maintaining stream channel integrity and wood recruitment (trees average distance from the creek approximately 10-15 feet).
Harvesting will take place along remaining portions of type 5 streams, but equipment will be excluded 30 feet from either side of all type 5 channels.

2) Will the project require any work over, in, or adjacent to (within 200 feet) to the described waters? If yes, please describe and attach available plans.
☐*No* ☒*Yes (See RMZ/WMZ table above and timber sale map.)*
Description (include culverts):
Wetland: No harvesting in the buffer.
Type 3 Dicks Creek: Thinning will be excluded from 150 feet of creek; no road crossings.
Type 4 streams: Thinning will be excluded from 100 feet of stream; no road crossings.
Type 5 streams: In the upper reaches of the proposal, 0-80 foot buffers (no harvest) are applied. Falling and yarding away from stream channels and their buffers is required.
Road construction will occur over one of the type 5's.
Designated skid trail will cross three of the type 5's. Where crossing the streams, structures will be installed.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.
Does not apply.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. *(Include diversions for fish-passage culvert installation.)*
☒*No* ☐*Yes, description:*

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.
☒*No* ☐*Yes, describe location:*

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.
☒*No* ☐*Yes, type and volume:*

7) Does the sub-basin contain soils or terrain susceptible to surface erosion and/or mass wasting? What is the potential for eroded material to enter surface water?
The sub-basin contains soils that are susceptible to surface erosion and/or mass wasting according to the state soil survey data and the Watershed Analysis report. The soil survey data for soils on the harvest site indicate an insignificant to high potential for mass wasting and a low to high potential for surface erosion see B.1.c above.
Potential exists for eroded material to enter surface water but surface erosion control/prevention measures discussed in B.1.h. minimize or prevent delivery to surface waters.

8) Is there evidence of changes to the channels in the WAU and sub-basin(s) due to surface erosion or mass wasting (accelerated aggradations, erosion, decrease in large organic debris (LOD), and change in channel dimensions)?
☐*No* ☒*Yes, describe changes and possible causes:*

The Hazel Watershed Analysis describes examples of mass wasting units. Below 1,000 feet elevation are landslides along river or creek bends, which periodically deliver sediment and large organic debris into the North Fork Stillaguamish River, Rollins Creek or Dicks Creek. River undercutting of steep banks in conjunction with deposits of "blue clay" has historically resulted in changes to the river or creek channels.

Shallow rapid failures have occurred in some small, incised creek channels in the1,200-2,000 foot elevation range. These smaller channels are "flashy", carrying water only during the wet season and for a short time after storm events.

9) Could this proposal affect water quality based on the answers to the questions 1-8 above?
☒*No* ☐*Yes, explain:*
Please refer to B.1.d.5. and B.1.h. for measures that will protect water quality.

10) What are the approximate road miles per square mile in the WAU and sub-basin(s)?

WAU	Sub-basin(s)	Road miles per square mile
Hazel WAU		**3.0**
	Dicks Creek	**0.3**
	Rollins	**3.6**

Are you aware of areas where forest roads or road ditches intercept sub-surface flow and deliver surface water to streams, rather than back to the forest floor?
☒*No* ☐*Yes, describe:*

11) *Is the proposal within a significant rain-on-snow (ROS) zone? If not,* ***STOP HERE*** *and go to question B-3-a-13 below. Use the WAU or sub-basin(s) for the ROS percentage questions below.*
☐*No* ☒*Yes, approximate percent of WAU in significant ROS zone.*
Hazel WAU: 40%
Approximate percent of sub-basin(s):
Dicks Creek Sub-basin: 46% ROS zone.
Rollins Sub-basin: 52% ROS zone.

12) *If the proposal is within the significant ROS zone, what is the approximate percentage of the WAU or sub-basin(s) within the significant ROS zone (all ownerships) that is (are) rated as hydrologically mature?*

Within a WAU with a completed Watershed Analysis, no HCP assessment is necessary.

13) *Is there evidence of changes to channels associated with peak flows in the WAU or sub-basin(s)?*
☐*No* ☒*Yes, describe observations:*
See B.3.a.8.

14) *Based on your answers to questions B-3-a-10 through B-3-a-13 above, describe whether and how this proposal, in combination with other past, current, or reasonably foreseeable proposals in the WAU and sub-basin(s), may contribute to a peak flow impact.*
See B.3.a.12.

15) *Is there water resource (public, domestic, agricultural, hatchery, etc.), or area of slope instability, downstream or downslope of the proposed activity that could be affected by changes in surface water amounts, quality, or movements as a result of this proposal?*
☒*No* ☐*Yes, possible impacts:*
The Skagit County and Snohomish County web sites were used to locate wells in the vicinity of the proposal. None were shown.

16) *Based on your answers to questions B-3-a-10 through B-3-a-15 above, note any protection measures addressing possible peak flow/flooding impacts.*
This proposal is a variable density thinning, removing under story trees and red alder (no other hardwoods). The residual relative density will average above 35. Hydrologically mature forests have a relative density of 25. This proposal will not significantly contribute to peak flows.

b. Ground *Water*:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.
Channeling water through ditches and culverts emptying out onto the forest floor will increase surface saturation in a local area, but is not expected to increase ground water.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.
Insignificant amounts of oil and other lubricants could be inadvertently spilled as a result of heavy equipment use. No lubricants will be disposed of on site.

3) *Is there a water resource use (public, domestic, agricultural, hatchery, etc.), or area of slope instability, downstream or down slope of the proposed activity that could be affected by changes in groundwater amounts, timing, or movements as a result this proposal?*
☒*No* ☐*Yes, describe:*

a) Note protection measures, if any.
Due to the nature of resource protection measures of the proposal, there should be no measurable affect on down-slope or downstream ground water resources. See B.3.a.16 and B.1.d.5.

c. Water Runoff (including storm water):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.
Storm water runoff intercepted by gravel roads will collect in road ditches and be diverted through cross drain culverts back to the forest floor. Runoff is not expected to flow into other waters, with proper placement of culverts.

2) Could waste materials enter ground or surface waters? If so, generally describe.
It is not expected that any waste materials will enter ground or surface waters in conjunction with this proposal.

a) Note protection measures, if any.
Directional felling away from streams. No lubricants will be disposed of on site.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:
(See surface water, ground water, and water runoff sections above, questions B-3-a-1-c, B-3-a-16, B-3-b-3-a, and B-3-c-2-a.)

See surface water, ground water, and water runoff sections above, questions B.3.a.1.bc, B.3.a.16, B.3.b.3.a, and B.3.c.2.a.

4. Plants

a. Check or circle types of vegetation found on the site:

☒deciduous tree: ☒alder, ☒maple, ☐aspen, ☒*cottonwood,* ☐*western larch,* ☐*birch*, ☒other: cherry
☒evergreen tree: ☒*Douglas fir,* ☐*grand fir,* ☐*Pacific silver fir,* ☐*ponderosa pine,* ☐*lodgepole pine,* ☒*western hemlock,* ☐*mountain hemlock,* ☐*Englemann spruce,* ☐*Sitka spruce,* ☒*red cedar,* ☐*yellow cedar,* ☐other:
☒shrubs: ☒*huckleberry,* ☒*salmonberry,* ☒*salal,* ☐*other:*
☐grass
☐pasture
☐crop or grain
☒wet soil plants: ☐cattail, ☐buttercup, ☐bullrush, ☒skunk cabbage, ☒*devil's club,* ☐other:
☐water plants: ☐water lily, ☐eelgrass, ☐milfoil, ☐other:
☒other types of vegetation: sword fern
☐*plant communities of concern:*

b. What kind and amount of vegetation will be removed or altered? *(See answers to questions A-11-a, A-11-b, B-3-a-1-b and B-3-a-1-c. The following sub-questions merely supplement those answers.)*
This proposal will thin second growth conifer and red alder trees. The thinning is a variable density removal of mostly understory trees and red alder. Some alteration of shrubs and ground vegetation may occur during the course of harvest activity.
In Units 4 and 6 there are larger western hemlock with mistletoe infestations. Some of these trees have large limbs that would qualify as marbled murrelet platforms. An assessment by a region biologist determined that there are not enough platforms to consider this area to contain potential suitable habitat. The Risk Assessment Map for Proprietary Data of this area did not identify Reclassified MM Habitat or Reclassified Plus MM Habitat. These specific trees are not part of the removal prescription.

1) *Describe the species, age, and structural diversity of the timber types immediately adjacent to the removal area. (See landscape/WAU and adjacency maps on the DNR website at: http://www.dnr.wa.gov under "SEPA Center.")*
North of the proposal is a 12 year old stand.
West is similar timber.
Southwest is a 16 year old stand.
South is an estimated 15-20 year old stand on private land.
East is USFS similar timber and also old growth.

2) *Retention tree plan:*
Variable retention thinning will be a diameter-restricted harvest. The harvest will be a "thinning from below" which means a harvest of trees in the smaller diameter ranges, leaving the largest diameter trees. Red alder will also be harvested within the sale boundaries.

c. List threatened or endangered *plant* species known to be on or near the site.
None known.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:
Natural regeneration of western hemlock, and red alder are expected, and will increase the species diversity on the proposal site. Openings created by the thinning that are greater than 1/10 acre will be planted with shade tolerant western redcedar, and Douglas fir conifer seedlings.

5. Animal

a. Circle or check any birds animals *or unique habitats* which have been observed on or near the site or are known to be on or near the site:

birds: ☒hawk, ☐heron, ☐eagle, ☒songbirds, ☐*pigeon*, ☐other:
mammals: ☒deer, ☒bear, ☐elk, ☐beaver, ☐other:
fish: ☐bass, ☐salmon, ☐trout, ☐herring, ☐shellfish, ☐other:
unique habitats: ☐*talus slopes,* ☐*caves,* ☐*cliffs,* ☐*oak woodlands,* ☐*balds,* ☐*mineral springs*

b. List any threatened or endangered species known to be on or near the site *(include federal- and state-listed species).*
DNR's TRAX System indicates no known threatened, endangered or special concern species on or near the proposal area. The proposal is located within the Finney Bear Management Unit, but no grizzly bears are expected to occur in the proposal area, and the proposal is not expected to impact grizzly bears or grizzly bear habitat.

c. Is the site part of a migration route? If so, explain.
☒*Pacific flyway* ☐*Other migration route:* *Explain if any boxes checked:*
All of Washington State is considered part of the Pacific Flyway. No impacts are anticipated as a result of this proposal being completed.

d. Proposed measures to preserve or enhance wildlife, if any:

1) *Note existing or proposed protection measures, if any, for the complete proposal described in question A-11.*

Species /Habitat: **Spotted Owl/Nesting Roosting Foraging (NRF)**

Protection Measures: **Variable density thinning is expected to accelerate the formation of sub-mature and/or Type A and B spotted owl habitat.**

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.
Does not apply.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.
Does not apply.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:
None.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.
There is minimal hazard due to heavy equipment operations. There is a slight chance of hydraulic or oil spills from the heavy equipment that will be operating on the site. There is a potential fire hazard if operating in moderate fire weather conditions during summer months.

1) Describe special emergency services that might be required.
Does not apply.

2) Proposed measures to reduce or control environmental health hazards, if any:
Safe operation of all equipment will be encouraged. Industrial restrictions/precaution levels regarding forest fire protection will be enforced. The timber purchaser will be required to have fire suppression equipment on site during the restricted fire season while harvest activity is going on.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?
Noise from log trucks and logging equipment will be present while operating during daylight hours.

2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from this site.
Noise from road construction and harvest activity will be present in the immediate vicinity of this proposal during the course of operations. Noise from log hauling will be present along the haul routes during the course of operations.

3) Proposed measures to reduce or control noise impacts, if any:
None. Noise associated with harvest and road construction activity will not be audible anywhere but in the immediate vicinity of the proposal. Noise from log hauling is an historic activity in the area and should not be present above customary levels.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? *(Site includes the complete proposal, e.g. rock pits and access roads.)*
Forest management and residential houses.

b. Has the site been used for agriculture? If so, describe.
No.

c. Describe any structures on the site.
None.

d. Will any structures be demolished? If so, what?
Does not apply.

e. What is the current zoning classification of the site?
Industrial Forestry.

f. What is the current comprehensive plan designation of the site?
Forestry.

g. If applicable, what is the current shoreline master program designation of the site?
N/A

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.
No.

i. Approximately how many people would reside or work in the completed project?
None.

j. Approximately how many people would the completed project displace?
None.

k. Proposed measures to avoid or reduce displacement impacts, if any:
Does not apply.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:
The design of this project is consistent with current comprehensive plans and zoning regulations.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.
Does not apply.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.
None.

c. Proposed measures to reduce or control housing impacts, if any:
None.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principle exterior building material(s) proposed?
Does not apply.

b. What views in the immediate vicinity would be altered or obstructed?
A total of 290 acres will be variable retention (thinned) harvested over the area.

1) Is this proposal visible from a residential area, town, city, developed recreation site, or a scenic vista?

☐*No* ☒*Yes, viewing location:*
Proposal is visible from residents living in rural areas south of Higgins Mountain. Part of the proposal will be using a 1950's truck grade as a skid trail. This skid trail is now the access route for hikers into USFS backcountry trail to the top of Higgins Mountain and Myrtle Lake.

2) *Is this proposal visible from a major transportation or designated scenic corridor (county road, state or interstate highway, US route, river, or Columbia Gorge SMA)?*
☐*No* ☒*Yes, scenic corridor name:*
The proposal will be visible along Hwy 530, an unofficial part of the Cascade Loop Scenic Byway of Washington State.

3) *How will this proposal affect any views described in 1) or 2) above?*
The proposal is a thinning, which will not alter original views.

c. Proposed measures to reduce or control aesthetic impacts, if any:
The skid trail will be rehabilitated following harvest activities and to continue to be used as trail access for Higgins Mountain.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?
Does not apply.

b. Could light or glare from the finished project be a safety hazard or interfere with views?
Does not apply.

c. What existing off-site sources of light or glare may affect your proposal?
Does not apply.

d. Proposed measures to reduce or control light and glare impacts, if any:
None.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?
Informal recreation in the area includes hiking, hunting, fishing, and horse back riding.

b. Would the proposed project displace any existing recreational uses? If so, describe:
Recreational use near the sale area will be limited or closed during the course of operations due to safety/security concerns. The USFS Higgins Mountain Trail begins on DNR land, and is a part of this proposal. The portion of the Higgins Mountain Trail on DNR land that is a 1950's truck trail will become a designated skid trail for this proposal. The skid trail will be rehabilitated following harvest activities and to continue to be used as trail access for Higgins Mountain.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:
The DNR portion (associated with this proposal) of the Higgins Mountain Trail will be re-established after operations for continued hiking access. Water bars and grass seeding of the skid trail prism will accelerate the natural process. The USFS has been contacted regarding the use of this trail. Contact with the Forest Service will be ongoing after yarding usage of the trail is complete for post harvest trail rehabilitation. The Forest Service has indicated that the trail beginning could potentially be rerouted by one of their volunteer groups. "Closed Trail" signs will be posted adjacent both harvest boundaries on the trail.

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for national, state, or local preservation registers known to be on or next to the site? If so, generally describe.
None known at this time.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.
None known at this time.

c. Proposed measures to reduce or control impacts, if any:
(Include all meetings or consultations with tribes, archaeologists, anthropologists or other authorities.)
Does not apply.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.
Highway 530 and C-Post Road.

1) *Is it likely that this proposal will contribute to an <u>existing</u> safety, noise, dust, maintenance, or other transportation impact problem(s)?*
No.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?
No.

c. How many parking spaces would the completed project have? How many would the project eliminate?
Does not apply.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).
No.

1) *How does this proposal impact the overall transportation system/circulation in the surrounding area, if at all?*
Apart from log hauling traffic during the course of operations, this proposal will have no impact on the overall transportation system in the surrounding area.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.
No.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.
For management purposes, 0.04 trips per day (approximately once a month), for the first 5-10 years after the completion of the proposal.

g. Proposed measures to reduce or control transportation impacts, if any:
Safe operation of vehicles will be encouraged.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.
No.

b. Proposed measures to reduce or control direct impacts on public services, if any.
Access will be restricted as needed during periods of extreme fire danger.

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.
Does not apply.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity, which might be needed.
Does not apply.